United States
Department
of Agriculture

Economics,
Statistics,
and Cooperatives
Service

July 1979

FARM INDEX

Farmland: Agriculture's Most Valuable Commodity

Outlook

Heavy demand for old-crop grains pushed up market prices this spring. Compared with April, May farm prices were up 7 percent for wheat, 4 percent for barley, and 3 percent for corn.

To a large extent, the tardy spring in most major grain areas of the Northern Hemisphere influenced prices: Traders simply didn't know what effect the late plantings would have on production.

Farmers did a good job of catching up on plantings this spring—most crops were in the ground at about the average time. The exception was spring wheat, which was planted quite late because of the unseasonably cold, wet weather in the northern growing areas.

High-powered machinery. The good catch-up work was aided in no small measure by the great capacity of the high-powered machinery now in general use.

At any rate, the growing season is now well along. As it progresses, market prices will vary as traders project yields based on new information from the fields. Early projections point to a substantially reduced 1979 small grain crop worldwide.

Successful crop production is pretty much up to the weather. If we have favorable growing conditions worldwide, this year's production of both wheat and soybeans would be expected to increase about 15 percent, but corn would be about the same.

Import demand forecast. If yields are good worldwide, import requirements would be reduced and the competition for markets would intensify. U.S. wheat exports would then be expected to decline, probably around 10 percent. Corn exports would probably remain the same, while soybean exports would increase slightly.

Another picture, based on negative weather conditions, would have wheat remaining about the same, soybeans about 2 percent, and corn much more because of smaller yields.

Domestic use down. Domestic use would be cut for most major crops, with wheat, corn, and soybeans off between 5 and 10 percent. However, poor crops in major foreign producing areas would mean an increase in U.S. exports.

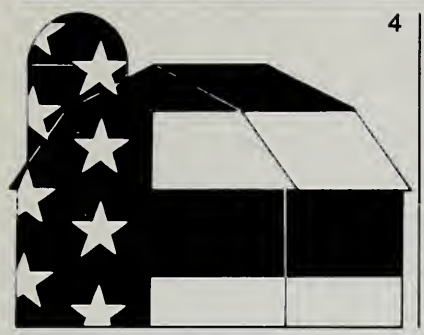
Ending stocks of all major crops would be down significantly. Corn would lead the plunge with a more than 50 percent tumble, followed by wheat, 35 percent, and soybeans, 15 percent.

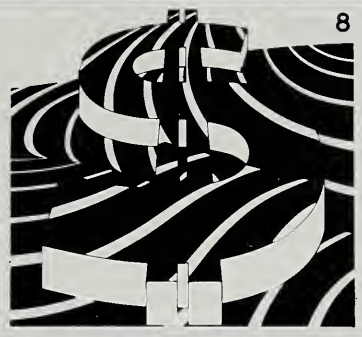
Farmers this season set aside or otherwise diverted 22.1 million acres of cropland—some 1.4 million less than the previous year.

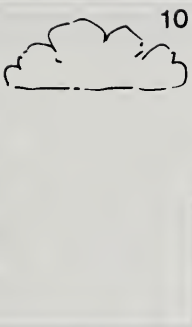
This year's participation included 10.6 million acres under the wheat program, 6.2 million under the feed grain program, 4.1 million from voluntary diversion from corn and grain sorghum, and 1.2 million registered under special wheat acreage grazing and hay programs.

Fewer farms were placed in set-aside programs this year—927,000, compared with 1.2 million in 1978.

Contents







Features

Departments

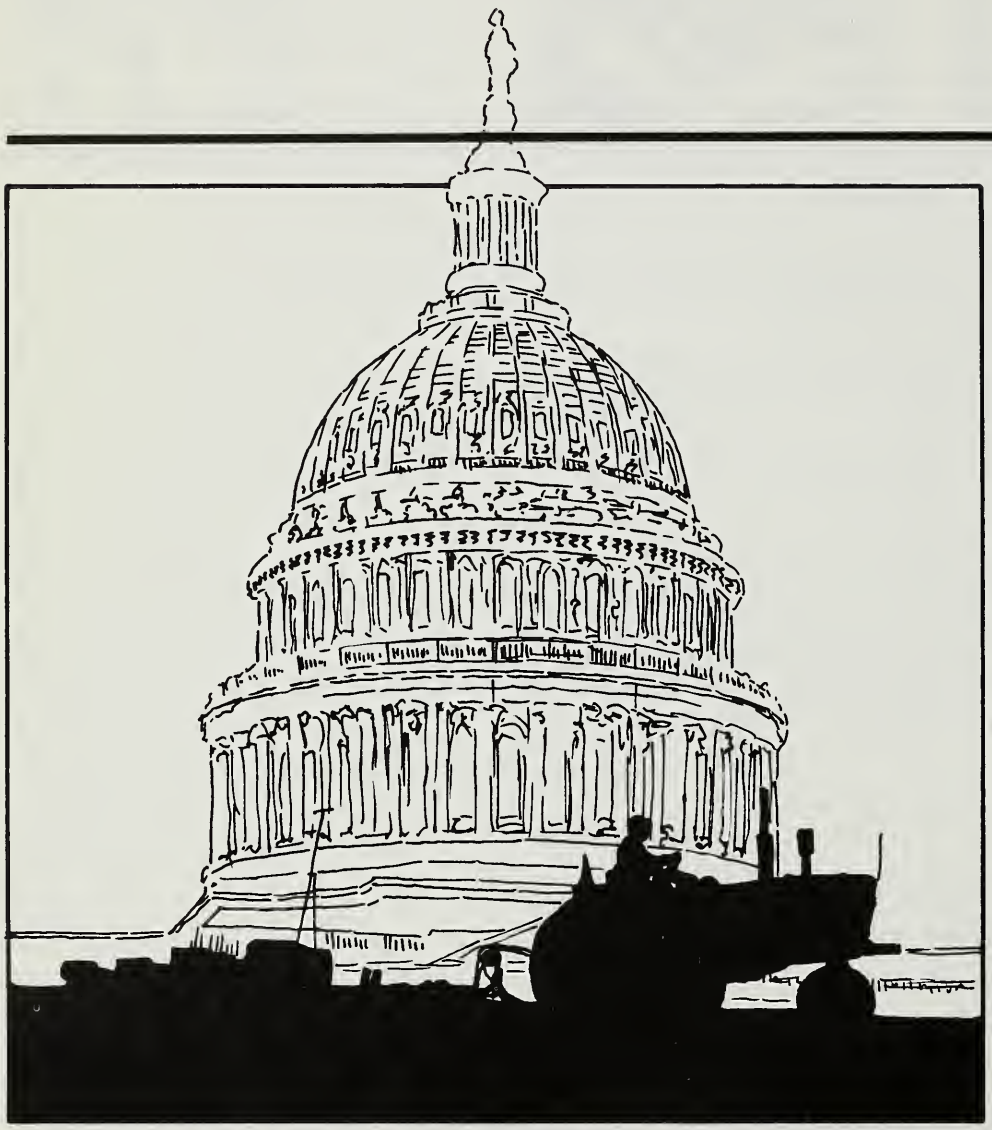
Martha Newton, Editor

George Martin, Howard Mobley, Barry Murray, Eric Van Chantfort, Daniel R. Williamson, Contributing Editors; Jonathan Kirk, Art Director

Farm Index is published monthly by the Economics, Statistics, and Cooperatives Service (ESCS), U.S. Department of Agriculture (USDA). July 1979. Vol. XVIII. No. 6.

Readers are invited to write for the research materials on which we base our articles. Address queries to *Farm Index,* Rm. 482 GHI, 500 12th St., SW, ESCS, USDA, Wash., D.C. 20250. Please cite article titles when ordering.

The Future of American Agriculture



Editor's Note: The following article is based on a speech by Secretary of Agriculture Bob Bergland.

"I ask you straight out if the farm policy decisions both Government and the private sector have made in modern times—and the programs that implemented those policies—are still in our long-term best interests."

With these words, Secretary Bob Bergland challenged American farmers to engage in "a full-scale national dialogue on the future of American agriculture."

The speech, delivered to the National Farmers Union Convention in Kansas City, Mo., last March, urged farmers to join in defining agriculture's needs, setting goals, and finding innovative ways to attain these goals.

"My concern is that when we have problems we too quickly reach for traditional solutions—like increasing support prices.

"We tend not to look for new ways or even consider whether the traditional approaches are appropriate for solving today's problems," Bergland declared.

National dialogue

Bergland stressed that his goal for the talk was not "to present my judgments. I am here to open what I hope will become a full-scale national dialogue on the future of American agriculture."

Speaking at a time when many farmers were arguing for Government-guaranteed 90 to 100 percent of parity, cost of production guarantees, and Federal efforts to save family farms, Bergland urged farmers to reassess these demands.

While acknowledging that the modern U.S. agricultural system and its policies and programs "helped create a food and fiber production system that is the envy of the world," Bergland said it is time to question aspects which have long been thought to be true.

Programs go awry?

"Could it be that the emphasis on price and income support programs has worked to the disadvantage of small and medium-sized farmers?" he asked as an example.

The Secretary then questioned whether these policies and programs contribute to "an unending trend toward larger and larger and fewer and fewer farms that will increasingly dominate and control production.

"Do they tend to help most those farmers who need help the least? And help least those farmers who need help the most?"

Bergland declared that a major lack in U.S. agricultural policy is that little attention has been given to the changing structure of agriculture.

Fewer-but-larger trend

To underscore this need, he said that in 1960, small farms with less than $20,000 in gross sales produced nearly half the value of all farm products. Today, these farms account for only 11 percent of the farm output.

"The truth is, we really don't now have a workable policy on the structure of agriculture," Bergland declared. "To the extent we talk about such a policy, its focus is always on the number of farms. But on what basis do we decide whether we should have 1 or 3 million farms?"

The decline in the number of farms has profoundly affected rural communities, he said. Citing the demise of small rural businesses that supported small farms and the migration to the cities, Bergland decried the resulting distortion of the "traditional rural social order."

Small farmers hurt?

The Secretary questioned whether previous efforts to shore up the farm economy have actually hurt small farmers. "I see the benefits of many of our farm programs . . . contributing to higher and higher land prices."

Bergland said rising land prices add to fixed production costs, thus discouraging young and new farmers from getting started.

"My own son-in-law is caught in this predicament," he said. "He runs my farm back in Minnesota because he simply can't afford to buy his own at today's prices."

Similarly, Bergland said he opposes 100 percent parity because it would not only "price us out of export markets . . . it would drive land prices even higher."

Cost of production

As for the cost-of-production concept, he said large farms would benefit most because they "tend to produce at below the national average cost of production.

"Increasing target prices would generate windfall profits for each bushel produced. And it's the large farms that produce most of the output."

Turning to the concern for protecting family farms, Bergland reiterated his support for "the family farm as a concept and as an institution of proven economic and social worth."

But the Secretary urged farmers to help define what is meant by the "family farm" to seek ways of truly working to preserve it.

He recalled that he and his staff recently met with 21 farmers who were lobbying for higher support prices they said were necessary for "family farmers such as themselves.

Commercial farms

"Yet 20 of those 21 farm operators had annual sales of more than $200,000. And several of them went so far as to suggest that any farm with less than $100,000 in annual sales should not be considered a commercial farm.

"That definition, of course would eliminate more than 90 percent of all farms in this country."

Bergland emphasized that in order to design policies to preserve the family farm, specific characteristics must be defined to guide policymakers.

The Secretary then suggested some guidelines for efforts to design such a policy:

- "It must emphasize the importance of good management practices in the interests of consumers and our competitive position in world markets."

While technology has enabled great production gains, large operations are best able to apply—and benefit from—new technology. Thus, technology enables the big to get bigger.

- "It must recognize that most farms should be under control and management of their owners and operators.
- "It must recognize the tremendous diversity within the family farm structure and encourage and support that diversity."

Bergland noted that "there is not really one population of farms but many. A national structures policy must recognize that calculations of average farm size and average farm income really provide no useful policy guidance."

The Secretary emphasized that a successful policy toward family farms must accommodate the interests of both "the family farm operator and the society in which he lives."

Farm bill coming

Bergland noted that the next comprehensive farm bill may be before Congress in 1981, and he urged the farmers "to begin a serious dialogue over what kind of agriculture you want for the future."

In closing, he said, "We can act now to insure the kind of American agriculture we want in the years ahead.

"Or we can let matters take their course, with the probable result that we will wake up some morning to find out that we have forfeited our last chance to save those characteristics of the farm sector we believe are worth preserving."

Production Price Update

Farmers will again spend more to produce major crops this year, with cost increases generally in line with inflation throughout the economy.

Higher prices for fuels and farm labor, plus a sharp hike for farm machinery, will contribute most to increased production costs. Prices for agricultural chemicals and fertilizer may rise only slightly.

On a planted acre basis, cost increases could range from 7 to 9 percent, although recent jumps in fuel and energy prices may add further pressure.

On a per-unit-of-production basis, cost runups are likely to be even steeper for some crops if yields slip after last year's especially good showing.

Of course, cost increases among crops will vary due to different input combinations.

Latest report

This outlook comes from USDA's latest costs-of-production report to Congress on 10 major crops. The annual report began a few years ago, based largely on survey data collected for 1974. Costs are updated each year using a computerized cost estimating procedure.

Every 4 years, a large-scale survey is conducted to keep current on farmers' expenses, input and machinery use, and cropping practices. In fact, 1979 is a survey year, and the Crop Reporting Board is contacting about 7,000 farmers through its field offices across the country. These results will be used for next year's costs-of-production report.

USDA economists emphasize that costs reported in the study are national averages and not necessarily those of any single farmer or group of farmers. Costs not only vary considerably among farms but also among regions.

Costs estimated

The costs estimated include management expenses, general farm overhead (including recordkeeping, utilities, and general farm maintenance), machinery ownership, and variable costs (expenses for seed, chemicals, fertilizers, labor, and fuel).

The report also provides several alternative estimates of land costs to reflect the different perspectives of owners, renters, and new or established entrants. However, because of the detail involved, only nonland costs are reported in this article.

In addition to the outlook for 1979, the report includes final estimates of costs of production for 1977 and preliminary estimates for 1978.

Crop rundown

On a crop-by-crop basis, here's what happened to costs—excluding land—over the last 2 years:

Cotton. Cotton was the only one of the 10 crops in the study with lower per acre costs in 1978 than in 1977. The reasons: declining chemical costs, less use of fertilizer, and lower ginning costs as a result of lower yields. Yields dropped 23 percent from 1977 and were the lowest since 1957.

However, with the lower yield, costs per pound of lint produced jumped about 28 percent for the U.S. as a whole.

In 1978, U.S. costs of producing a planted acre of cotton averaged about $258, but costs ranged from about $168 in the Southern Plains to more than $518 in the Southwest. Costs per pound of lint averaged about 63 cents in the Southern Plains, 64 cents in the Delta, 67 cents in the Southeast, and 73 cents in the Southwest.

Corn. Corn growers in all regions faced higher production expenses in 1978 compared with 1977. However, the national average yield increased nearly 14 percent, so that costs per bushel were lower in all regions except the Southwest.

Costs per planted acre ranged from about $149 in the Lake States and Corn Belt to slightly above $245 in the Southwest. Costs per bushel were estimated at $1.39 in the Lake States/Corn Belt, $1.59 in the Northern Plains, $1.69 in the Northeast, $2.38 in the Southwest, and $2.41 in the Southeast.

Grain sorghum. Grain sorghum costs of production increased in all regions in 1978 on both a per-acre and per-bushel basis. Costs of all inputs except chemicals increased, and the national average yield was 1.6 bushels lower than in 1977.

U.S. costs per bushel for dryland sorghum averaged $1.62, while costs for the 22 percent of the crop produced under irrigation averaged $2.30.

By region, costs per acre were lowest in the Central Plains, about $92, and highest in the Southwest, about $224. Per-bushel costs were $1.61 in the Central Plains, $2.55 in the Southern Plains, and $3.19 in the Southwest.

Barley. Barley cost more to produce per acre in all regions in 1978, but yields per planted acre were the highest in several years. Consequently, per bushel costs dropped in 1978 in the Northwest, Southern Plains, and

Northern Plains. The Southwest and Northeast faced higher unit costs.

Per acre costs in 1978 ranged from about $68 in the Northern Plains—the major producing region—to $134 in the Southwest. By the bushel, production costs averaged $1.56 in the Northern Plains, $1.57 in the Northwest, $2.05 in the Northeast, $2.10 in the Southern Plains, and $3.19 in the Southwest.

Oats. Oats demanded higher outlays in 1978, with variable costs up nearly 6 percent and machinery ownership costs almost 15 percent higher. This raised per acre costs in all regions, and a 17-percent drop in yields in the Lake States/Corn Belt boosted national average costs per bushel sharply.

Nevertheless, yields were higher in both the Northeast and Northern Plains, and unit costs in the Northeast were lower than in 1977. In 1978, costs per planted acre varied from about $51 in the Northern Plains to $86 in the Northeast. Costs per bushel were $1.08 in the Northern Plains, $1.16 in the Lake States/Corn Belt, and $1.61 in the Northeast.

Wheat. Wheat growers faced different situations, depending on the class of wheat produced and the region. For all wheat, variable costs increased only slightly, but the rise in machinery ownership costs was more significant.

However, yield was up an average of 2 bushels an acre from 1977 to 1978, leaving the cost per bushel about the same in both years.

For the different classes of wheat, average U.S. costs per bushel in 1978 were as follows: Hard Red Winter, $2.55; Soft Red Winter, $2.39; Durum, $2.26; White wheat, $2.20; and Hard Red Spring, $2.52.

From 1977 to 1978, per acre costs dropped for Hard Red Winter, but rose for the other classes. Unit costs were down for both Durum and White wheat.

Soybeans. Soybean costs, both per acre and per bushel, rose in 1978 in all producing regions, including the Southeast and Delta where yields were up slightly.

Variable and machinery ownership costs were higher, and the U.S. average yield declined more than a bushel from 1977 to 1978 to just under 29 bushels an acre.

The U.S. average cost per acre was about $97 last year, with costs varying from around $77 in the Northern Plains to $117 in the Southeast.

Costs per bushel averaged $2.66 in the Lake States/Corn Belt—which accounted for over 60 percent of U.S. production—$3.00 in the Northern Plains, $4.82 in the Delta, and $5.22 in the Southeast.

Flaxseed. Flaxseed production is heavily concentrated, with the Dakotas and Minnesota accounting for 90 percent of U.S. production. Costs per planted acre, led by machinery ownership expenses, rose nearly 8 percent in 1978, but yields, up 1.7 bushels, were the highest since 1969. This reduced average costs per bushel nearly 7 percent from 1977 to $4.61.

Peanuts. Peanut costs per acre were up in all producing regions in 1978, with the variable cost increase averaging $6.55 an acre or 2.5 percent.

Costs per pound dropped from 1977 in the two eastern regions because yields were up 5 to 10 percent. In the Southern Plains, however, yields were 3 percent lower, so costs per pound increased.

The U.S. average cost per acre was about $374 in 1978, with costs ranging from around $275 in the Southern Plains to $426 in the Southeast.

Costs per pound averaged about 13.3 cents in Virginia and North Carolina, 13.7 cents in the Southeast, and 18.4 cents in the Southern Plains.

Rice. Rice is grown primarily in Arkansas, Louisiana, Mississippi, California, Texas, and a few counties in southeastern Missouri. Per acre costs run about 10 to 20 percent higher in California than the other States, but California yields tend to be 20 to 30 percent higher, too. Hence, costs per 100 pounds are lowest in California.

Average U.S. costs per acre rose in 1978, reflecting moderately higher costs in all regions except the non-Delta area of Arkansas.

Yields were down in California but up in the other producing areas, although not enough to offset the higher per-acre costs.

Only Arkansas, with about a 5-percent increase in yield and practically the same per-acre cost, had a lower cost per 100 pounds than in 1977.

Per acre costs in 1978 averaged about $382 in California and ranged from $327 to $338 in the other areas. Costs of producing 100 pounds of rice were $7.26 in California, $7.39 in Arkansas (non-Delta area), $7.74 in the Gulf Coast, and $7.79 in Mississippi.

[Based on the manuscript, "Costs of Producing Selected Crops in the United States, 1977, 1978, and Projections for 1979," prepared under the direction of Ronald D. Krenz, National Economics Division, Oklahoma State University, for the Committee on Agriculture, Nutrition, and Forestry, U.S. Senate, March 1979.]

Farmland: Agriculture's Most Valuable Commodity

"The price of farmland will continue to rise. . . as long as there are more people who believe land prices will never fall than there are farms for sale."

This quote by a financial lender in an Economics, Statistics, and Cooperatives Service (ESCS) publication sums up the country's steadfast belief in rising land values, a belief that has seen the value of U.S. farmland triple since 1970. It increased 14 percent last year alone.

The rate of increase during this period has far exceeded any previously recorded in U.S. history.

Beginning of the trend

The present trend began in 1972, as a result of a combination of world weather problems, increasing populations, the devaluation of the American dollar, and the U.S.S.R. entering the world trade market as a major importer. As a result, American grain prices doubled, and in some cases tripled, increasing the value of farmland.

Farmland value rose most in the grain-producing North Central region, especially the Corn Belt. From 1972 to 1978, land prices more than tripled in the Corn Belt.

Tremendous increases also occurred in the Lake States and the Northern Plains. The smallest increases were in the Mountain States, Southern Plains, and Pacific States, but even those ranged from 55 to 98 percent.

No set pattern

Presently, there seems to be no particular regional pattern for land price increases—the leading States are spread across the Nation.

Farmland prices have risen continually since the mid-1930's. This resulted from increased productivity, growth in demand for food, Government farm programs, readily available credit, farm enlargement, and inflation.

The primary determinants of farmland prices are actual and expected net farm income.

Since available farmland is limited, increased returns can be converted into higher land prices. Any decrease in net returns that reduces future income expectations tends to slow the rate of price increases, or even reduce land prices.

Credit availability

The availability of credit is probably the second most important factor influencing farmland prices. And the more land prices rise, the more major its role. In the year ending March 1, 1978, a record 89 percent of all farm real estate sales of 10 or more acres were credit financed.

There has been an abundant supply of credit for real estate purchases throughout the 1970's, with all major financial associations increasing their real estate lending.

Probably the most dramatic lending increases occurred in the Federal Land Banks (FLB)—their outstanding loan figures rose from $6.7 billion in 1970 to $24.5 billion in 1979.

What's behind the increase

The increased lending can be attributed to:

- The Farm Credit Act of 1971, which resulted in less restrictions on FLB lending.
- Life insurance companies reentering the farm mortgage market more competitively as farm real estate investments became more attractive.
- Good repayment record of farmers.

During the last 60 years, mortgage rates have risen from 5–6 percent to 8–10 percent. But the increased interest rates have had little effect on the demand for land financing.

Besides farm income and credit, the availability of land can affect values.

On the average, less than 3 percent of total U.S. farmland is sold annually. This thin market, combined with strong demand, brings stiff competition for any land that is sold.

Other factors

Two other important factors that influence farmland value are:

- The belief that farmland is an effective hedge against inflation.

Throughout the last 20 years, there has been a 2-percent annual rise in land values for each 1-percent annual rate of increase in the general price level.

This favorable record of farmland as a hedge against inflation, combined with an erratic stock market, has attracted both farmer and nonfarmer buyers willing to pay high prices.

- Government farm programs that reduce risks and increase income for farmers.

Capital gains resulting from escalating land prices have improved the wealth and equity positions of some farmers. But the high cost of farmland has created a barrier to the small and beginning farmer. The end result is fewer but larger farms.

Many Government programs intended to help the small-scale farmer don't—especially the tax system, which gives the biggest savings to farmers with the largest operations.

Steady-to-higher prices

Indications show that land prices will remain steady to higher. But, this does not exclude the possibility of modest decreases in some regions.

The major safeguard against a significant land price decline is the Federal Government. The latest Government programs intended to uphold land prices are the Food and Agricultural Act of 1977 and the Agricultural Credit Act of 1978.

The first law attempts to support farm income, and the second expands the Government's role in providing credit financing during economic emergencies.

[Based on the speech, "Farm Real Estate Finance and Valuation Report," presented by Larry A. Walker, National Economics Division, at a meeting of Connecticut Mutual, Feb. 27, 1979, at South Seas Plantation, Fla.]

The Sky's the Limit

U.S. farmers are not going to be fenced in when it comes to productivity. Although their best efforts may squeeze out only moderate productivity gains in the next 2 decades, by then some very promising new technologies should be working their way into the farmer's repertoire.

While the potential of these emerging technologies is difficult to assess, they may well shock agricultural productivity into a new growth spiral when they become commercially available for adoption. Researchers predict this could begin happening around the turn of the century.

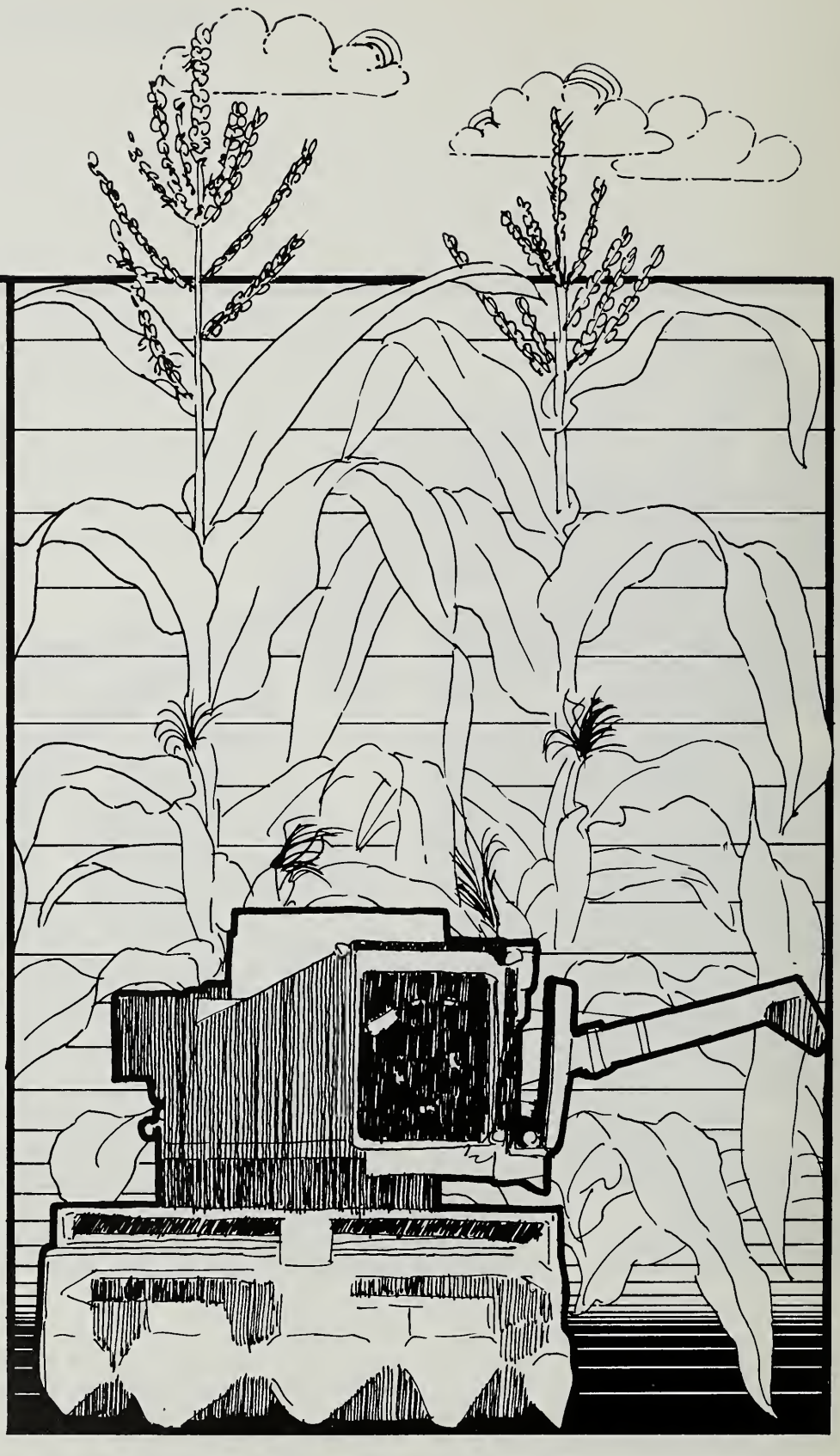
Bioregulators

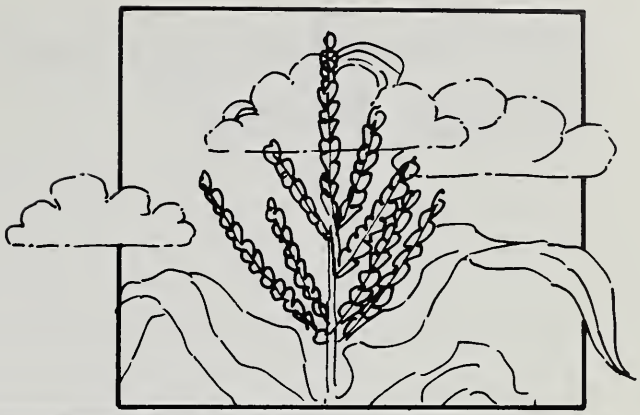
One area—not at all new to agriculture—where advancing technology may have a major impact is in the development of new bioregulators to help producers control ripening and other characteristics of fruits and vegetables to facilitate harvesting. Bioregulators may also prolong the shelf life of some fruits and vegetables and reduce cooling costs.

Similarly, a technology now in the works that is expected to play a big role early in the 21st century is the field of photosynthesis enhancement—boosting the growth rates of crops by improving the natural process by which plants form carbohydrates and absorb nitrogen for protein synthesis.

Cattle twinning

The last of the three technologies, considered by many to have the greatest commercial potential for the next several decades, is in the area of livestock breeding. Known as cattle twinning, it would give producers the ability to stimulate multiple births in beef cattle by genetic selection, embryo transfer, and multiple ovulation through hormonal control.





Prospective breakthroughs in these three areas could give U.S. agriculture the boost it needs to enter another period of fast-climbing productivity.

Several other important technologies also loom on the horizon, including improved crop hybrids, new pest control strategies, better fertilizer, and irrigated crops which can thrive on salt water.

Current growth rate

However, researchers suggest that the commercial application of these technologies, in contrast with the three mentioned earlier, will do no more than make it possible to maintain the current rate of growth in U.S. agricultural productivity.

This rate began to slow in the 1960's after 2 decades of accelerated growth. From 1940 to 1960, U.S. farm productivity—as measured by output per unit of all inputs—increased an average of 2 percent a year.

However, since 1960, annual productivity gains have averaged only about 1½ percent, suggesting that productivity may be approaching the limits of growth from existing technologies.

No major impact

Most of the emerging technologies are not expected to be in commercial use before the 1990's, so they are not likely to have any major impact on productivity in this century.

In fact, decades may pass from the commercial introduction of a new technology to its widespread adoption. According to one study, adoption lags in agriculture have ranged from 3 years for DDT to 53 years for mechanical cottonpickers.

Typically, a new technology starts out slowly because it usually requires some investment, and farmers are uncertain about its benefits.

As the early adopters showcase its advantages, more and more farmers are attracted, and, consequently, productivity gains accelerate sharply.

Finally, these gains taper off when most potential adopters are using the technology and it's no longer a source for additional improvement.

More productive

Of course, each time this occurs, it leaves the farmer more productive than before. Just 40 years ago, the average U.S. farmer produced enough food for 11 people; today he feeds 59—44 at home and 15 abroad.

Although a number of factors contribute to productivity growth, over the long run the key ingredient is new technology.

In fact, U.S. agricultural history can be divided into four periods based on major sources of technological change: hand power, horse power, mechanical power, and science power.

In each of the previous periods, as productivity reached or approached limits to growth from the dominant technology, a new major technology emerged and stimulated productivity to a higher growth curve.

"Science power"

The current period of "science power" began during World War II and has featured an unprecedented flow of technological change in agriculture, some of it based on scientific refinements in chemical fertilizers, irrigation systems, insecticides, conservation practices, seed varieties, and livestock breeds.

Unlike natural resources, this science-based technology is a man-made resource which can be continuously renewed through research and development. Thus, concern that we are approaching a limit to growth in agricultural productivity is probably overly pessimistic.

To date, we have not even reached the limits to productivity growth from mechanization, improved plant varieties, agricultural chemicals, and other technological innovations of recent times.

New technologies

And before the potential of these known technologies is exhausted, scientists expect a new family of technologies, including the three already discussed, to emerge in the period between 1985 and 2000.

Looking even further ahead when these technologies reach their limits, controlled-environment agriculture—which would eliminate the effects of weather—could have a major impact, perhaps in a new epoch of technology based on "space power."

Whatever the future holds, there will almost certainly be periods of stress and even stagnation in productivity—but there will also be times of unprecedented growth.

The longer range prospect is for moderate growth as society allocates limited public funds to agricultural research and education to keep the supply of food reasonably in balance with domestic and world demand.

[Based on the manuscript, "Agricultural Productivity Growth in U.S. Agriculture," by Yao-chi Lu, Philip Cline, and Leroy Quance, National Economics Division.]

Wildlife Management: A New Focus

Although the sportsman and the environmentalist sometimes appear to be poles apart on what they want from wildlife, they may have more in common than one might think.

For years, wildlife management has focused primarily on the needs of hunters and fishermen, perhaps because they have supplied the bulk of revenues for this endeavor—through licenses, taxes, and user fees.

Recently, the ecological and aesthetic values of nature lovers, bird watchers, and nonhunters have received new emphasis in wildlife management programs.

To glean an understanding of what a well-rounded wildlife management program might encompass, USDA and the Department of the Interior's Fish and Wildlife Service analyzed data from three surveys of sportsmen and the general public.

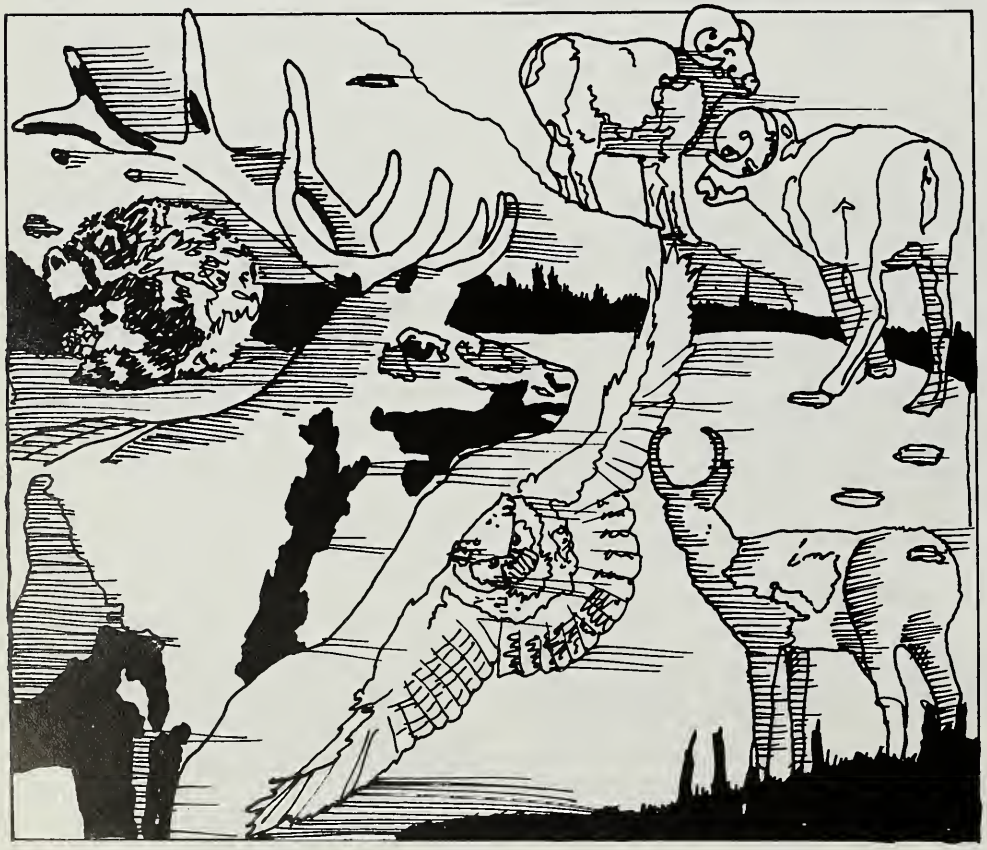
Sportsmen's satisfaction

The results show that sportsmen considered "experiencing the natural wildlife environment" and "enjoying the companionship of others with similar interests" to be the major determinants for their satisfaction.

In fact, the majority of sportsmen would trade lower bag limits or creels for the continued availability of these opportunities.

As for the general public, survey results indicated that most valued the pleasures of viewing wildlife and "just knowing that the animals exist" more than the hunting opportunity provided.

These respondents claimed that they valued sport hunting less than any other use of wildlife, except as a source of furs.



Parallel interests

In general, the public's interest in wildlife paralleled that of sportsmen. Both groups were concerned with protecting wildlife habitats, and not just for the sole purpose of furnishing supplies of game for hunters. They were more interested in assuring the existence of various species and providing ample viewing pleasure.

Thus, wildlife resources may not be measured properly in terms of hunting and fishing success rates, days afield, or perhaps even the number of animals or species.

Important factors

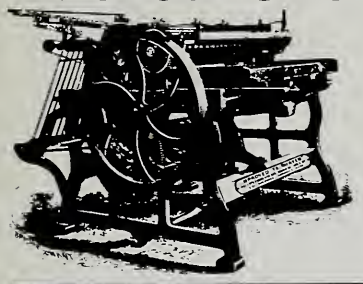
More important seem to be:

- Insuring the quality of wildlife habitats.
- Providing enjoyment for people in natural environments (for example, by reducing crowding while still maintaining ample hunting opportunity).
- Furnishing viewing pleasure for active sportsmen, nature lovers, and vicarious users (those who enjoy looking at nature via printed pictures, television, or movies) in both rural and urban settings.

As for the future, the importance of wildlife management for aesthetic and similar goals—rather than simply wildlife populations or hunters' days afield—will likely continue to increase.

[Based on the manuscript, "Assessing the Demand for Wildlife Resources: A First Step," by Louise M. Arthur, Natural Resource Economics Division, Tuscon, Ariz.]

Recent Publications



Single copies of the publications listed here are available free from *Farm Index,* Economics, Statistics, and Cooperatives Service, Rm. 482 GHI, 500 12th St., SW, U.S. Dept. of Agriculture, Washington, D.C. 20250. However, publications indicated by *(*)* may be obtained only by writing to the experiment station or university indicated. For addresses, see July and December issues of *Farm Index.* Publications marked with (#) may be purchased from NTIS, U.S. Dept. of Commerce, 5285 Port Royal Rd., Springfield, Va. 22161, at the price listed.

Chronological Landmarks in American Agriculture. Maryanna S. Smith, National Economics Division. AIB-425.

This chronology lists major events in the history of U.S. agriculture. Key inventions, laws, changes in land policies, individuals, contributions, the development of institutions, and the introduction of new types of crops and livestock are included. There are also notes on all commissioners, secretaries of agriculture, and agencies established in response to new programs in USDA. Usually, published sources available in many libraries are cited as references, especially Yearbooks of Agriculture and Agricultural History.

Energy Conservation and the Rural Home: Economic Considerations for the Nation and the Individual. Melvin R. Janssen, National Rural Development Committee Staff. PB 286 222.

Household energy use increased 140 percent during 1950-75. It consumes 23.7 percent of the National annual energy budget, compared with only 2.9 percent for farm production. Our national goal is to weatherize 90 percent of existing homes to minimum Federal standards by 1985. ($4)

Comparison of Sample Designs for a Population of Farms. Earl E. Houseman, Statistical Research Division. ESCS-35.

This report compares sampling errors for alternative sampling plans. Some comparisons of interest are the relationship between sampling errors for various commodities and proportions of farms producing commodities; the efficiency of the minor civil division in the sampling unit compared with the individual farm; the efficiency of geographic stratification related to the number of strata; and the efficiency of alternate allocations of a sample to strata.

Unmasking Problems in Rural Health Planning. Jeannette Fitzwilliams, Economic Development Division. RDRR-11.

Separating regional health statistics into smaller geographic segments will help local planning agencies identify and deal with health needs of rural people. National and regional averages for key health planning variables mask rural problems because these variables differ widely within and among regions. Further, health service areas are more rural than the national average would indicate.

An Analysis of Food Stamp Redemptions. William T. Boehm, Michael Belongia, and Masao Matsumoto, National Economics Division. ESCS-55.

The Food Stamp Program has grown substantially since it became part of permanent legislation in 1964. The research reported in this bulletin attempts to design and estimate statistical models useful in developing a better understanding of the food coupon redemption process. Adequate funds must be transferred on a timely basis from congressional appropriations to a redemption account in order to cover the Government's food stamp liability.

Indices of Agricultural Production for Asia and Oceania, Average 1961-65 and Annual 1969-78. Asia Branch, International Economics Division. SB-619.

Indices of agricultural production in foreign countries have been prepared since World War II as part of a continuing assessment of the current agricultural situation abroad. During and after the war, the effort focused on Europe. Since the mid-1950's, special attention has been given to the less developed countries because of an arrangment with the Agency for International Development, whereby USDA prepares annual reports on the volume of agricultural production in most countries that are aid recipients.

Public Attitudes Toward Coyote Control. Richard G. Stuby, Edwin H. Carpenter, and Louise M. Arthur, Natural Resource Economics Division. ESCS-54.

A survey of attitudes and beliefs of U.S. adults regarding the control of coyotes on western sheep ranges was conducted to aid the evaluation of coyote control policy alternatives. Most people interviewed did not side strongly with the plight of either sheep or coyotes.

State Experiment Stations

Addresses of State experiment stations:

A ready reference list for readers wishing to order publications and source material published through State experiment stations.

STATE	CITY	ZIP CODE
ALABAMA	Auburn	36830
ALASKA	Fairbanks	99701
ARIZONA	Tucson	85721
ARKANSAS	Fayetteville	72701
CALIFORNIA	Berkeley	94720
	Davis	95616
	Parlier	93648
	Riverside	92521
COLORADO	Fort Collins	80523
CONNECTICUT	New Haven	06504
	Storrs	06268
DELAWARE	Newark	19711
DISTRICT OF COLUMBIA	Washington	20008
FLORIDA	Gainesville	32611
GEORGIA	Athens	30602
	Experiment	30212
	Tifton	31794
GUAM	Agana	96910
HAWAII	Honolulu	96822
IDAHO	Moscow	83843
ILLINOIS	Urbana	61801
INDIANA	West Lafayette	47907
IOWA	Ames	50011
KANSAS	Manhattan	66506
KENTUCKY	Lexington	40506
LOUISIANA	Baton Rouge	70803
MAINE	Orono	04473
MARYLAND	College Park	20742
MASSACHUSETTS	Amherst	01003
MICHIGAN	East Lansing	48824
MINNESOTA	St. Paul	55108
MISSISSIPPI	Mississippi State	39762
MISSOURI	Columbia	65201
MONTANA	Bozeman	59715
NEBRASKA	Lincoln	68583
NEVADA	Reno	89507
NEW HAMPSHIRE	Durham	03824
NEW JERSEY	New Brunswick	08903
NEW MEXICO	Las Cruces	88003
NEW YORK	Ithaca	14853
	Geneva	14456
NORTH CAROLINA	Raleigh	27607
NORTH DAKOTA	Fargo	58102
OHIO	Columbus	43210
	Wooster	44691
OKLAHOMA	Stillwater	74074
OREGON	Corvallis	97331
PENNSYLVANIA	University Park	16802
PUERTO RICO	Rio Piedras	00928
RHODE ISLAND	Kingston	02881
SOUTH CAROLINA	Clemson	29631
SOUTH DAKOTA	Brookings	57006
TENNESSEE	Knoxville	37901
TEXAS	College Station	77843
UTAH	Logan	84322
VERMONT	Burlington	05401
VIRGINIA	Blacksburg	24061
VIRGIN ISLANDS	St. Croix	00850
WASHINGTON	Pullman	99164
WEST VIRGINIA	Morgantown	26506
WISCONSIN	Madison	53706
WYOMING	Laramie	82071

Economic Trends

[1]Ratio of index of prices received by farmers to index of prices paid, interest, taxes, and farm wage rates. [2]Beginning January 1978 for all urban consumers. [3]Revised to adapt to weighting structure and retail price indexes for domestically produced farm foods from the new Consumer Price Index for all urban consumers (CPI-U) published by the Bureau of Labor Statistics. [4]Annual and quarterly data are on a 50-State basis. [5]Annual rates seasonally adjusted first quarter. [6]Seasonally adjusted. [7]As of March 1, 1967. [8]As of February 1.

Source: USDA (Agricultural Prices, Foreign Agricultural Trade, and Farm Real Estate Market Developments); U.S. Dept. of Commerce (Current Industrial Reports, Business News Reports, Monthly Retail Trade Report, and Survey of Current Business); and U.S. Dept. of Labor (The Labor Force, Wholesale Price Index, and Consumer Price Index).

Item	Unit or Base Period	1967	1978 Year	1978 April	1979 Feb.	1979 March	1979 April
Prices:							
Prices received by farmers	1967=100	—	210	208	241	246	244
Crops	1967=100	—	203	208	216	214	212
Livestock and products	1967=100	—	216	209	264	274	272
Prices paid, interest, taxes, and wage rates	1967=100	—	219	216	238	243	245
Prices paid (living and production)	1967=100	—	212	209	229	235	237
Production items	1967=100	—	216	214	235	243	246
Ratio[1]	1967=100	—	96	96	101	101	100
Producer prices, all commodities	1967=100	—	209.3	206.4	223.9	226.4	229.7
Industrial commodities	1967=100	—	209.4	206.0	222.4	225.1	228.6
Farm products	1967=100	—	212.7	213.6	240.5	242.5	245.9
Processed foods and feeds	1967=100	—	202.6	200.2	218.7	220.4	222.3
Consumer price index, all items[2]	1967=100	—	195.4	191.5	207.1	209.1	211.5
Food[2]	1967=100	—	211.4	207.5	228.2	230.4	232.3
Farm Food Market Basket:[3]							
Retail cost	1967=100	—	199.4	194.9	218.5	220.7	222.4
Farm value	1967=100	—	207.4	206.1	239.2	242.1	241.0
Farm-retail spread	1967=100	—	194.5	188.1	205.8	207.7	211.1
Farmers' share of retail cost	Percent	—	39.3	39.9	41.4	41.4	40.9
Farm Income:[4]							
Volume of farm marketings	1967=100	—	12.2	99	101	111	101
Cash receipts from farm marketings	Million dollars	—	110,221	7,593	8,822	10,019	9,126
Crops	Million dollars	—	52,180	2,912	3,747	4,285	3,451
Livestock and products	Million dollars	—	58,041	4,681	5,075	5,734	5,675
Gross income[5]	Billion dollars	49.9	124.3	—	—	139.0	—
Farm production expenses[5]	Billion dollars	38.2	96.1	—	—	105.5	—
Net income before inventory adjustment[5]	Billion dollars	11.7	28.2	—	—	33.5	—
Agricultural Trade:							
Agricultural exports	Million dollars	—	—	2,508	2,356	2,877	2,652
Agricultural imports	Million dollars	—	—	1,309	1,235	1,389	—
Land Values:							
Average value per acre	Dollars	[7]168	[8]488	—	559	—	—
Total value of farm real estate	Billion dollars	[7]189	[8]512	—	584	—	—
Gross National Product:[5]	Billion dollars	796.3	2,107.6	—	—	2,264.8	—
Consumption	Billion dollars	490.4	1,340.1	—	—	1,440.4	—
Investment	Billion dollars	120.8	345.6	—	—	371.1	—
Government expenditures	Billion dollars	180.2	433.9	—	—	458.5	—
Net exports	Billion dollars	4.9	−12.0	—	—	−5.3	—
Income and Spending:[6]							
Personal income, annual rate	Billion dollars	626.6	1,708.0	1,669.4	1,833.3	1,855.8	1,861.8
Total retail sales, monthly rate	Billion dollars	24.4	65.0	64.1	71.1	71.9	72.2
Retail sales of food group, monthly rate	Billion dollars	5.8	14.3	14.2	15.6	15.6	15.8
Employment and Wages:[6]							
Total civilian employment	Millions	74.4	94.4	93.8	96.6	96.8	96.2
Agricultural	Millions	3.8	3.3	3.3	3.3	3.3	3.2
Rate of unemployment	Percent	3.8	6.0	6.0	5.7	5.7	5.8
Workweek in manufacturing	Hours	40.6	40.4	40.4	40.2	40.6	38.9
Hourly earnings in manufacturing, unadjusted	Dollars	2.83	6.17	5.99	6.52	6.55	6.53
Industrial Production:[6]	1967=100	—	145.2	143.2	151.0	152.0	150.5
Manufacturers' Shipments and Inventories:[6]							
Total shipments, monthly rate	Million dollars	46,487	125,317	124,537	136,735	143,296	—
Total inventories, book value end of month	Million dollars	84,527	197,802	185,715	203,231	205,418	—
Total new orders, monthly rate	Million dollars	47,062	129,263	128,175	144,894	147,495	—

United States Government Printing Office
Division of Public Documents, Washington, D.C. 20402
Official Business/Penalty for Private Use $300

POSTAGE
& FEES PAID
U.S. DEPT.
OF
AGRICULTURE
AGR 101
THIRD CLASS

To stop mailing ☐ or to change your address ☐ send this sheet with new address to *Farm Index*, ESCS, U.S. Dept. of Agriculture, Rm. 482 GHI, 500 12th St., SW, Wash., D.C. 20250.